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Sequence Listing was accepted.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: Tue Nov 06 14:52:54 EST 2007

=====

Application No: 10568422

Version No: 1.0

Input Set:

Output Set:

Started: 2007-10-22 11:17:29.696

Finished: 2007-10-22 11:17:36.099

Elapsed: 0 hr(s) 0 min(s) 6 sec(s) 403 ms

Total Warnings: 0

Total Errors: 23

No. of SeqIDs Defined: 91

Actual SeqID Count: 91

| Error code | Error Description |
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| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (7) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (16) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (29) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (29) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (30) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (30) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (33) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (45) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (46) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (56) |

Input Set:

Output Set:

Started: 2007-10-22 11:17:29.696
Finished: 2007-10-22 11:17:36.099
Elapsed: 0 hr(s) 0 min(s) 6 sec(s) 403 ms
Total Warnings: 0
Total Errors: 23
No. of SeqIDs Defined: 91
Actual SeqID Count: 91

| Error code | Error Description |
|------------|--|
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| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (81) |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (91) |

SEQUENCE LISTING

<110> Telford, John L.

Grandi, Guido

Margarit Y Ros, Immaculada

Maione, Domenico

<120> Immunogenic Compositions for Streptococcus agalactiae

<130> PP20665.0003

<140> 10568422

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<151> 2004-02-28

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| tcacaagaac | gccagcgaa | aacaacagta | aatatctata | aattacaagc | tgatagttat | 180 |
| aaatcggaac | ttactttctaa | tgggtggtatc | gagaataaag | acggcggaagt | aatatctaac | 240 |
| tatgctaaac | ttggtgacaa | tgtaaaaggt | ttgcaagggtg | tacagtttaa | acgttataaa | 300 |
| gtcaagacgg | atattttctgt | tgatgaattg | aaaaaattga | caacagttga | agcagcagat | 360 |
| gcaaaagttg | gaacgattct | tgaagaaggt | gtcagctctac | ctcaaaaaac | taatgctcaa | 420 |
| ggtttggtcg | tcgatgctct | ggattcaaaa | agtaatgtga | gatacttgta | tgtagaagat | 480 |
| ttaaagaatt | caccttcaaa | cattaccaaa | gcttatgctg | taccgtttgt | gttggaatta | 540 |
| ccagttgcta | actctacagg | tacagggtttc | ctttctgaaa | ttaatatatta | ccctaaaaac | 600 |
| gttgtaactg | atgaaccaa | aacagataaa | gatgttaaaa | aattaggtca | ggacgatgca | 660 |
| ggttatacga | ttggtgaaga | attcaaattg | ttcttgaaat | ctacaatccc | tgccaattta | 720 |
| gggtgactatg | aaaaatttga | aattactgat | aaatttgcag | atggcttgac | ttataaatct | 780 |
| gttggaaaaa | tcaagattgg | ttcgaaaaca | ctgaatagag | atgagcacta | cactattgat | 840 |
| gaaccaacag | ttgataacca | aaatacatta | aaaattacgt | ttaaaccaga | gaaattttaa | 900 |
| gaaattgctg | agctacttaa | aggaatgacc | cttggttaaaa | atcaagatgc | tcttgataaa | 960 |
| gctactgcaa | atacagatga | tgcggcattt | ttggaaattc | cagttgcatc | aactattaat | 1020 |
| gaaaaagcag | ttttaggaac | agcaattgaa | aatacttttg | aacttcaata | tgaccatact | 1080 |
| cctgataaaag | ctgacaatcc | aaaaccatct | aatcctccaa | gaaaaccaga | agttcatact | 1140 |
| gggtgggaaac | gatttgtaaa | gaaagactca | acagaaacac | aaacactagg | tggtgctgag | 1200 |
| tttgatttgt | tggcttctga | tgggacagca | gtaaaatgga | cagatgctct | tattaaagcg | 1260 |

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Thr Val Asn Ile Tyr Lys Leu Gln Ala Asp Ser Tyr Lys Ser Glu Ile
  50             55             60
Thr Ser Asn Gly Gly Ile Glu Asn Lys Asp Gly Glu Val Ile Ser Asn
  65             70             75             80
Tyr Ala Lys Leu Gly Asp Asn Val Lys Gly Leu Gln Gly Val Gln Phe
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Lys Arg Tyr Lys Val Lys Thr Asp Ile Ser Val Asp Glu Leu Lys Lys
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Leu Thr Thr Val Glu Ala Ala Asp Ala Lys Val Gly Thr Ile Leu Glu
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Glu Gly Val Ser Leu Pro Gln Lys Thr Asn Ala Gln Gly Leu Val Val
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Asp Ala Leu Asp Ser Lys Ser Asn Val Arg Tyr Leu Tyr Val Glu Asp
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             260            265            270
Arg Asp Glu His Tyr Thr Ile Asp Glu Pro Thr Val Asp Asn Gln Asn
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Thr Leu Lys Ile Thr Phe Lys Pro Glu Lys Phe Lys Glu Ile Ala Glu
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Ser Thr Ile Asn Glu Lys Ala Val Leu Gly Lys Ala Ile Glu Asn Thr

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| | | | | | | | | | | | | | | | |
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| Phe | Glu | Leu | Gln | Tyr | Asp | His | Thr | Pro | Asp | Lys | Ala | Asp | Asn | Pro | Lys |
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| Phe | Asp | Leu | Leu | Ala | Ser | Asp | Gly | Thr | Ala | Val | Lys | Trp | Thr | Asp | Ala |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Leu | Ile | Lys | Ala | Asn | Thr | Asn | Lys | Asn | Tyr | Ile | Ala | Gly | Glu | Ala | Val |
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| Thr | Gly | Gln | Pro | Ile | Lys | Leu | Lys | Ser | His | Thr | Asp | Gly | Thr | Phe | Glu |
| | 435 | | | | | | 440 | | | | | 445 | | | |
| Ile | Lys | Gly | Leu | Ala | Tyr | Ala | Val | Asp | Ala | Asn | Ala | Glu | Gly | Thr | Ala |
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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Thr | Tyr | Lys | Leu | Lys | Glu | Thr | Lys | Ala | Pro | Glu | Gly | Tyr | Val | Ile |
| 465 | | | | | 470 | | | | 475 | | | | | | 480 |
| Pro | Asp | Lys | Glu | Ile | Glu | Phe | Thr | Val | Ser | Gln | Thr | Ser | Tyr | Asn | Thr |
| | | | | 485 | | | | | 490 | | | | | 495 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Pro | Thr | Asp | Ile | Thr | Val | Asp | Ser | Ala | Asp | Ala | Thr | Pro | Asp | Thr |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Lys | Asn | Asn | Lys | Arg | Pro | Ser | Ile | Pro | Asn | Thr | Gly | Gly | Ile | Gly |
| | 515 | | | | | 520 | | | | | | 525 | | | |
| Thr | Ala | Ile | Phe | Val | Ala | Ile | Gly | Ala | Ala | Val | Met | Ala | Phe | Ala | Val |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Lys | Gly | Met | Lys | Arg | Arg | Thr | Lys | Asp | Asn | | | | | | |
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<400> 3

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Leu | Gln | Ala | Asp | Ser | Tyr | Lys | Ser | Glu | Ile | Thr | Ser | Asn | Gly | Gly |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Ile | Glu | Asn | Lys | Asp | Gly | Glu | Val | Ile | Ser | Asn | Tyr | Ala | Lys | Leu | Gly |
| | 35 | | | | | 40 | | | | | | 45 | | | |
| Asp | Asn | Val | Lys | Gly | Leu | Gln | Gly | Val | Gln | Phe | Lys | Arg | Tyr | Lys | Val |
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| Lys | Thr | Asp | Ile | Ser | Val | Asp | Glu | Leu | Lys | Lys | Leu | Thr | Thr | Val | Glu |
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| Pro | Gln | Lys | Thr | Asn | Ala | Gln | Gly | Leu | Val | Val | Asp | Ala | Leu | Asp | Ser |
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| Lys | Ser | Asn | Val | Arg | Tyr | Leu | Tyr | Val | Glu | Asp | Leu | Lys | Asn | Ser | Pro |
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| Ser | Asn | Ile | Thr | Lys | Ala | Tyr | Ala | Val | Pro | Phe | Val | Leu | Glu | Leu | Pro |
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| Val | Ala | Asn | Ser | Thr | Gly | Thr | Gly | Phe | Leu | Ser | Glu | Ile | Asn | Ile | Tyr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Pro | Lys | Asn | Val | Val | Thr | Asp | Glu | Pro | Lys | Thr | Asp | Lys | Asp | Val | Lys |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Lys | Leu | Gly | Gln | Asp | Asp | Ala | Gly | Tyr | Thr | Ile | Gly | Glu | Glu | Phe | Lys | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Trp | Phe | Leu | Lys | Ser | Thr | Ile | Pro | Ala | Asn | Leu | Gly | Asp | Tyr | Glu | Lys | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Phe | Glu | Ile | Thr | Asp | Lys | Phe | Ala | Asp | Gly | Leu | Thr | Tyr | Lys | Ser | Val | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Gly | Lys | Ile | Lys | Ile | Gly | Ser | Lys | Thr | Leu | Asn | Arg | Asp | Glu | His | Tyr | | |
| 225 | | | | 230 | | | | | 235 | | | | | | 240 | | |
| Thr | Ile | Asp | Glu | Pro | Thr | Val | Asp | Asn | Gln | Asn | Thr | Leu | Lys | Ile | Thr | | |
| | | | 245 | | | | | 250 | | | | | | 255 | | | |
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| | | 260 | | | | | | 265 | | | | | 270 | | | | |
| Thr | Leu | Val | Lys | Asn | Gln | Asp | Ala | Leu | Asp | Lys | Ala | Thr | Ala | Asn | Thr | | |
| | 275 | | | | 280 | | | | | | 285 | | | | | | |
| Asp | Asp | Ala | Ala | Phe | Leu | Glu | Ile | Pro | Val | Ala | Ser | Thr | Ile | Asn | Glu | | |
| | 290 | | | | 295 | | | | 300 | | | | | | | | |
| Lys | Ala | Val | Leu | Gly | Lys | Ala | Ile | Glu | Asn | Thr | Phe | Glu | Leu | Gln | Tyr | | |
| 305 | | | | 310 | | | | | 315 | | | | | | 320 | | |
| Asp | His | Thr | Pro | Asp | Lys | Ala | Asp | Asn | Pro | Lys | Pro | Ser | Asn | Pro | Pro | | |
| | | | 325 | | | | | 330 | | | | | 335 | | | | |
| Arg | Lys | Pro | Glu | Val | His | Thr | Gly | Gly | Lys | Arg | Phe | Val | Lys | Lys | Asp | | |
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| Ser | Thr | Glu | Thr | Gln | Thr | Leu | Gly | Gly | Ala | Glu | Phe | Asp | Leu | Leu | Ala | | |
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| Ser | Asp | Gly | Thr | Ala | Val | Lys | Trp | Thr | Asp | Ala | Leu | Ile | Lys | Ala | Asn | | |
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| Thr | Asn | Lys | Asn | Tyr | Ile | Ala | Gly | Glu | Ala | Val | Thr | Gly | Gln | Pro | Ile | | |
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| Lys | Leu | Lys | Ser | His | Thr | Asp | Gly | Thr | Phe | Glu | Ile | Lys | Gly | Leu | Ala | | |
| | | | 405 | | | | | 410 | | | | | 415 | | | | |
| Tyr | Ala | Val | Asp | Ala | Asn | Ala | Glu | Gly | Thr | Ala | Val | Thr | Tyr | Lys | Leu | | |
| | 420 | | | | | | 425 | | | | | 430 | | | | | |
| Lys | Glu | Thr | Lys | Ala | Pro | Glu | Gly | Tyr | Val | Ile | Pro | Asp | Lys | Glu | Ile | | |
| | 435 | | | | | 440 | | | | | 445 | | | | | | |
| Glu | Phe | Thr | Val | Ser | Gln | Thr | Ser | Tyr | Asn | Thr | Lys | Pro | Thr | Asp | Ile | | |
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| Thr | Val | Asp | Ser | Ala | Asp | Ala | Thr | Pro | Asp | Thr | Ile | Lys | Asn | Asn | Lys | | |
| 465 | | | | 470 | | | | | 475 | | | | | 480 | | | |
| Arg | Pro | Ser | Ile | Pro | Asn | Thr | Gly | Gly | Ile | Gly | Thr | Ala | Ile | Phe | Val | | |
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| Ala | Ile | Gly | Ala | Ala | Val | Met | Ala | Phe | Ala | Val | Lys | Gly | Met | Lys | Arg | | |
| | 500 | | | | | 505 | | | | | 510 | | | | | | |
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| Val | Ala | Gly | Ser | Thr | Val | Glu | Pro | Val | Ala | Gln | Phe | Ala | Thr | Gly | Met |
| | 20 | | | | | | 25 | | | | | 30 | | | |
| Ser | Ile | Val | Arg | Ala | Ala | Glu | Val | Ser | Gln | Glu | Arg | Pro | Ala | Lys | Thr |

| | | |
|-------------------------|---|-----|
| 35 | 40 | 45 |
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| Thr Ser Asn Gly Gly Ile | Glu Asn Lys Asp Gly Glu Val Ile Ser Asn | |
| 65 | 70 | 75 |
| Tyr Ala Lys Leu Gly Asp | Asn Val Lys Gly Leu Gln Gly Val Gln Phe | 80 |
| 85 | 90 | 95 |
| Lys Arg Tyr Lys Val Lys | Thr Asp Ile Ser Val Asp Glu Leu Lys Lys | |
| 100 | 105 | 110 |
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| Leu Lys Asn Ser Pro Ser | Asn Ile Thr Lys Ala Tyr Ala Val Pro Phe | |
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| Val Leu Glu Leu Pro Val | Ala Asn Ser Thr Gly Thr Gly Phe Leu Ser | |
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| Glu Ile Asn Ile Tyr Pro | Lys Asn Val Val Thr Asp Glu Pro Lys Thr | |
| 195 | 200 | 205 |
| Asp Lys Asp Val Lys Lys | Leu Gly Gln Asp Asp Ala Gly Tyr Thr Ile | |
| 210 | 215 | 220 |
| Gly Glu Glu Phe Lys Trp | Phe Leu Lys Ser Thr Ile Pro Ala Asn Leu | |
| 225 | 230 | 235 |
| Gly Asp Tyr Glu Lys Phe | Glu Ile Thr Asp Lys Phe Ala Asp Gly Leu | |
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| Ser Thr Ile Asn Glu Lys | Ala Val Leu Gly Lys Ala Ile Glu Asn Thr | |
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| Phe Glu Leu Gln Tyr Asp | His Thr Pro Asp Lys Ala Asp Asn Pro Lys | |
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| Phe Val Lys Lys Asp Ser | Thr Glu Thr Gln Thr Leu Gly Gly Ala Glu | |
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| Phe Asp Leu Leu Ala Ser | Asp Gly Thr Ala Val Lys Trp Thr Asp Ala | |
| 405 | 410 | 415 |
| Leu Ile Lys Ala Asn Thr | Asn Lys Asn Tyr Ile Ala Gly Glu Ala Val | |
| 420 | 425 | 430 |
| Thr Gly Gln Pro Ile Lys | Leu Lys Ser His Thr Asp Gly Thr Phe Glu | |
| 435 | 440 | 445 |
| Ile Lys Gly Leu Ala Tyr | Ala Val Asp Ala Asn Ala Glu Gly Thr Ala | |
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| Val Thr Tyr Lys Leu Lys | Glu Thr Lys Ala Pro Glu Gly Tyr Val Ile | |
| 465 | 470 | 475 |
| Pro Asp Lys Glu Ile Glu | Phe Thr Val Ser Gln Thr Ser Tyr Asn Thr | |
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35 40 45
Thr Val Asn Ile Tyr Lys Leu Gln Ala Asp Ser Tyr Lys Ser Glu Ile
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Thr Ser Asn Gly Gly Ile Glu Asn Lys Asp Gly Glu Val Ile Ser Asn
65 70 75 80
Tyr Ala Lys Leu Gly Asp Asn Val Lys Gly Leu Gln Gly Val Gln Phe
85 90 95
Lys Arg Tyr Lys Val Lys Thr Asp Ile Ser Val Asp Glu Leu Lys Lys
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Leu Thr Thr Val Glu Ala Ala Asp Ala Lys Val Gly Thr Ile Leu Glu
115 120 125
Glu Gly Val Ser Leu Pro Gln Lys Thr Asn Ala Gln Gly Leu Val Val
130 135 140
Asp Ala Leu Asp Ser Lys Ser Asn Val Arg Tyr Leu Tyr Val Glu Asp
145 150 155 160
Leu Lys Asn Ser Pro Ser Asn Ile Thr Lys Ala Tyr Ala Val Pro Phe
165 170 175
Val Leu Glu Leu Pro Val Ala Asn Ser Thr Gly Thr Gly Phe Leu Ser
180 185 190
Glu Ile Asn Ile Tyr Pro Lys Asn Val Val Thr Asp Glu Pro Lys Thr
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Asp Lys Asp Val Lys Lys Leu Gly Gln Asp Asp Ala Gly Tyr Thr Ile
210 215 220
Gly Glu Glu Phe Lys Trp Phe Leu Lys Ser Thr Ile Pro Ala Asn Leu
225 230 235 240
Gly Asp Tyr Glu Lys Phe Glu Ile Thr Asp Lys Phe Ala Asp Gly Leu
245 250 255
Thr Tyr Lys Ser Val Gly Lys Ile Lys Ile Gly Ser Lys Thr Leu Asn
260 265 270
Arg Asp Glu His Tyr Thr Ile Asp Glu Pro Thr Val Asp Asn Gln Asn
275 280 285
Thr Leu Lys Ile Thr Phe Lys Pro Glu Lys Phe Lys Glu Ile Ala Glu

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 290 | | | | | | 295 | | | | | | 300 | | | | | |
| Leu | Leu | Lys | Gly | Met | Thr | Leu | Val | Lys | Asn | Gln | Asp | Ala | Leu | Asp | Lys | | |
| 305 | | | | | | 310 | | | | 315 | | | | | 320 | | |
| Ala | Thr | Ala | Asn | Thr | Asp | Asp | Ala | Ala | Phe | Leu | Glu | Ile | Pro | Val | Ala | | |
| | | | | 325 | | | | | 330 | | | | | | 335 | | |
| Ser | Thr | Ile | Asn | Glu | Lys | Ala | Val | Leu | Gly | Lys | Ala | Ile | Glu | Asn | Thr | | |
| | | | 340 | | | | | | 345 | | | | | | | | |